

LOUIS-PHILIPPE MORENCY

University of Southern California
Institute for Creative Technologies
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EDUCATION

Ph.D. in Computer Science October 2006
Massachusetts Institute of Technology Cambridge, MA
Thesis title: Context-based Visual Feedback Recognition

S.M. in Computer Science June 2002
Massachusetts Institute of Technology Cambridge, MA

B.A. in Computer Engineering June 2000
Laval University Quebec city, Canada

RESEARCH INTERESTS

- **Computer vision:** visual gesture recognition, motion tracking, facial expression.
- **Human-computer interaction:** robot interactions, intelligent virtual agents.
- **Machine learning:** multimodal integration, semi-supervised learning.

RESEARCH EXPERIENCE

Research Scientist 2007-present
USC Institute for Creative Technologies Marina del Rey, CA
Research topics: multimodal perception, interactions with virtual agents, nonverbal behaviors generation, context-based recognition.

Postdoctoral Associate 2006-2007
Massachusetts Institute of Technology Cambridge, MA
Research topics: visual feedback recognition, embodied conversational agents, multi-modal integration.

Research Assistant 2000-2006
Massachusetts Institute of Technology Cambridge, MA
Research topics: context-based visual gesture recognition, human-computer interaction, head pose estimation, 3D view registration.

Research Intern Summer 2002
Honda Research Institute USA Mountain View, CA
Research topic: robot localization algorithm for indoor environment using stereo camera

Research Assistant 1998-1999
Computer vision and systems laboratory, Laval University Quebec city, Canada
Research topic: three-dimensional object recognition and pose estimation.

TEACHING EXPERIENCE

Teaching Assistant Spring 2003
Massachusetts Institute of Technology Cambridge, MA
Computer vision and applications: Prepared problem sets, offered office hours and gave short tutorials.

Teaching Assistant 1998-1999
Laval University Quebec city, Canada
Algorithms for Engineers I: Data structures, algorithms and oriented object programming.
C++ programming for Unix: Assisted 100 students with problem sets and class projects.

Instructor Summer 1998
Bois-de-Boulogne College Montreal, Canada
Taught an introductory computer science and web design course to 25 students.
Responsible for designing curriculum, daily lectures, and final project.

Science Tutor 1995-1996
Sainte-Foy College Quebec city, Canada
Provided individual tutoring to students in physics and mathematics.

AWARDS AND HONORS

- **AI's 10 to Watch**, IEEE Intelligent Systems, 2008
- **Best paper award**, International Conference on Multimodal Interfaces, 2008
- **Best paper award**, IEEE International Conference on Automatic Face and Gesture Recognition, 2008
- **Best paper award**, International Conference on Intelligent Virtual Agents, 2008
- **Best paper award**, International Conference on Multimodal Interfaces, 2006
- **Best paper award**, International Conference on Multimodal Interfaces, 2005
- **Best tutor award**, Sainte-Foy College, 1996
- **Honor Roll**, Laval University, 1996-1997

PUBLICATIONS

Book chapter

- **L.-P. Morency**, C. Sidner, and T. Darrell, Visual Feedback Recognition for Embodied Agent: The role of contextual information, *Engineering Approaches to Conversational Informatics*, Toyooki Nishida, Editor. John Wiley & Sons, to be published in 2007

Journal papers

1. J. Hendler, P. Cimiano, D. Dolgov, A. Levin, P. Mika, B. Milch, **L.-P. Morency**, B. Motik, J. Neville, E. B. Sudderth, and L. von Ahn, AI's 10 to Watch. *Intelligent Systems*, IEEE press, May/June 2008
2. **L.-P. Morency**, C. Sidner, C. Lee, and T. Darrell, Head Gestures for Perceptual Interfaces: The Role of Context in Improving Recognition. *Artificial Intelligence*. Elsevier, accepted for publication, 2006
3. A. Quattoni, S. Wang, **L.-P. Morency**, M. Collins, and T. Darrell, Hidden-state Conditional Random Fields, *IEEE Transactions on Pattern Analysis and Machine Intelligence* (PAMI), accepted for publication, 2006
4. A. Rahimi, **L.-P. Morency**, and T. Darrell, Reducing Drift in Differential Tracking, *Computer Vision and Image Understanding* (CVIU), accepted for publication, 2006
5. C. M. Christoudias, **L.-P. Morency**, and T. Darrell, Non-parametric and Light-field Deformable Models, *Computer Vision and Image Understanding* (CVIU), 104(1):16-35, October 2006

Refereed conference papers

1. **L.-P. Morency**, I. de Kok and J. Gratch, Context-based Recognition during Human Interactions: Automatic Feature Selection and Encoding Dictionary, *10th International Conference on Multimodal Interfaces (ICMI 2008)*, October 2008 ****Best paper award****
2. **L.-P. Morency**, J. Whitehill and Javier Movellan, Generalized Adaptive View-based Appearance Model: Integrated Framework for Monocular Head Pose Estimation, *8th International Conference on Automatic Face and Gesture Recognition (FG 2008)*, September 2008 ****Best paper award****
3. **L.-P. Morency**, I. de Kok and J. Gratch, Predicting Listener Backchannels: A Probabilistic Multimodal Approach, *Conference on Intelligent Virtual Agents (IVA 2008)*, September 2008 ****Best paper award****
4. X. Sun, **L.-P. Morency**, D. Okanohara, Y Tsuruoka and Jun'ichi Tsujii, Modeling Latent-Dynamic in Shallow Parsing: A Latent Conditional Model with Improved Inference, *The 22nd International Conference on Computational Linguistics (COLING 2008)*, August 2008
5. **L.-P. Morency**, A. Quattoni and T. Darrell, Latent-Dynamic Discriminative Models for Continuous Gesture Recognition, *Proceedings IEEE Conference on Computer Vision and Pattern Recognition*, June 2007
6. **L.-P. Morency** and T. Darrell, Conditional Sequence Model for Context-based Recognition of Gaze Aversion, *4th Joint Workshop on Machine Learning and Multimodal Interaction*, June 2007
7. J. Gratch, N. Wang, A. Okhmatovskaia, F. Lamothe, M. Morales and **L.-P. Morency**, Can virtual humans be more engaging than real ones?, *12th International Conference on Human-Computer Interaction*, Beijing, China 2007
8. **L.-P. Morency**, C. M. Christoudias, and T. Darrell, Recognizing Gaze Aversion Gestures in Embodied Conversational Discourse, *International Conference on Multimodal Interactions (ICMI'06)*, Banff, Canada, November 2006

9. C. M. Christoudias, K. Saenko, **L.-P. Morency**, and T. Darrell, Co-Adaptation of Audio-Visual Speech and Gesture Classifiers, *International Conference on Multimodal Interactions (ICMI'06)*, Banff, Canada, November 2006 ****Best paper award****
10. J. Gratch, A. Okhmatovskaia, F. Lamothe, S. Marsella, M. Morales, R. J. van der Werf, and **L.-P. Morency**, Virtual Report, *6th International Conference on Intelligent Virtual Agents (IVA'06)* Marina del Rey, CA, August 2006
11. **L.-P. Morency**, C. Sidner, C. Lee, and T. Darrell, The Role of Context in Head Gesture Recognition, *The Twenty-First National Conference on Artificial Intelligence, Nectar track (AAAI'06)*, Boston, MA, July 2006
12. S. Wang, A. Quattoni, **L.-P. Morency**, D. Demirdjian, and T. Darrell, Hidden Conditional Random Fields for Gesture Recognition, *Conference on Computer Vision and Pattern Recognition (CVPR'06)*, New York City, NY, June 2006
13. C. Sidner, C. Lee, **L.-P. Morency**, and C. Forlines, The Effect of Head-Nod Recognition in Human-Robot Conversation, *Annual Conference on Human-Robot Interaction (HRI'06)* Salt Lake City, Utah, USA, March 2006
14. **L.-P. Morency**, and T. Darrell, Head Gesture Recognition in Intelligent Interfaces: The Role of Context in Improving Recognition, *International Conference on Intelligent User Interfaces (IUI'06)*, Sydney, Australia, 2006
15. **L.-P. Morency**, C. Sidner, C. Lee, and T. Darrell, Contextual Recognition of Head Gestures, *International Conference on Multimodal Interactions (ICMI'05)*, pp.18-24, Italy, October 2005 ****Best paper award****
16. **L.-P. Morency**, C. Sidner, and T. Darrell, Towards Context-Based Visual Feedback Recognition for Embodied Agents, *Symposium on Conversational Informatics for Supporting Social Intelligence and Interaction (AISB'05)*, pp.69-72, Hatfield, UK, April 2005
17. **L.-P. Morency**, and T. Darrell, From Conversational Tooltips to Grounded Discourse: Head Pose Tracking in Interactive Dialog Systems, *International Conference on Multimodal Interfaces (ICMI'04)*, pp. 32-37, 2004
18. C. M. Christoudias, **L.-P. Morency**, and T. Darrell, Light Field Appearance Manifolds, *European Conference on Computer Vision (ECCV'04)*, vol. 4, pp.481-493, Pragues, Czech Republic, May 2004
19. C. Lee, N. Lesh, C. Sidner, **L.-P. Morency**, A. Kapoor, and T. Darrell, Nodding in Conversations with a Robot, *CHI extended abstracts (CHI'04)*, pp. 785-786, Vienna, Austria, 2004
20. M. Siracusa, **L.-P. Morency**, K. Wilson, J. Fisher, and T. Darrell, A Multi-Modal Approach for determining Speaker Location and Focus, *International Conference on Multimodal Interactions (ICMI'03)*, pp. 77-80, 2003
21. **L.-P. Morency**, A. Rahimi, and T. Darrell, Adaptive View-based Appearance Model, *Computer Vision and Pattern Recognition (CVPR'03)*, vol. 1, pp. 803-810, Wisconsin, June 2003
22. **L.-P. Morency**, P. Sundberg, and T. Darrell, Pose Estimation using 3D View-Based Eigenspaces, *ICCV workshop on Analysis and Modeling of Face and Gesture*, pp. 45-52, Nice, France, October 2003

23. **L.-P. Morency** and R. Gupta, Robust Real-time Egomotion from Stereo Images, *International Conference on Image Processing (ICIP'03)*, vol. 3, pp. 719-722, Barcelona, Spain, September 2003
24. **L.-P. Morency** and T. Darrell, Stereo Tracking using ICP and Normal Flow Constraint, *International Conference on Pattern Recognition (ICPR 2002)*, vol. 3, pp. 367-372, Quebec city, Canada, August 2002
25. **L.-P. Morency**, A. Rahimi, N. Checka, and T. Darrell, Fast Stereo-based Head Tracking for Interactive Environment, *International Conference on Automatic Face and Gesture Recognition (FG 2002)*, pp. 375-380, 2002
26. T. Darrell, K. Tollmar, F. Bentley, N. Checka, **L.-P. Morency**, A. Rahimi, and A. Oh, Fast-responsive Interfaces: from Direct Manipulation to Perceptive Presence, *International Conference of Ubiquitous Computing (UbiCom'02)* pp. 135-151, 2002
27. A. Oh, H. Fox, M. Van Kleek, A. Adler, K. Gajos, **L.-P. Morency**, and T. Darrell, Evaluating Look-to-Talk: A Gaze-Aware Interface in a Collaborative Environment, *CHI extended abstracts (CHI'02)*, pp. 650-651, 2002
28. A. Rahimi, **L.-P. Morency**, and T. Darrell, Bounded error parametric motion tracking, *International Conference on Computer Vision (ICCV'01)*, vol. 1, pp. 315-322, Vancouver, Canada, July 2001

Theses

1. **L.-P. Morency**, Context-based Visual Feedback Recognition, PhD thesis, CSAIL Technical report MIT-CSAIL-TR-2006-075, October 2006, <http://hdl.handle.net/1721.1/34893>
2. **L.-P. Morency**, Stereo-Based Head Pose Tracking Using Iterative Closest Point and Normal Flow Constraint, Master thesis, AI Technical report 2003-006, June 2002, <http://hdl.handle.net/1721.1/7102>

INVITED TALKS

- Workshop on Facial and Bodily Expressions for Control and Adaptation of Games (ECAG'08), September 2008
- Panelist at the Special session on Multi-sensor HCI for Smart Environments at the Conference on Automatic Face and Gesture Recognition, September 2008
- Tokyo University, Tsujii Lab, September 2008
- Massachusetts Institute for Creative Technologies, Vision seminar, May 2008
- University of Chicago, McNeil Lab, December 2007
- Northwestern University, ArticLab, December 2007
- University of California, San Diego, Machine perception Laboratory, November 2007
- Mitsubishi Electronic Research Laboratories, April 2006
- Boston University, Image and Video Computing Group, March 2006

SERVICE

- Area chair and program committee for International Conference of Multimodal Interaction (ICMI) 2008

- Program committee for International Conference of Multimodal Interaction (ICMI) 2009
- Program committee for International Conference on Intelligent User Interfaces (IUI) 2009
- Program committee for AAAI 2009 Spring Symposium on Human Behavior Modeling
- Reviewer for IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Transaction on Multimedia (MM), IEEE Transactions on Robotics (TRO), International Journal Pattern Recognition and Artificial Intelligence (IPRAI)

REFERENCES

- **Trevor Darrell**, Adjunct Associate Professor, University of California, Berkeley, trevor@eecs.berkeley.edu
- **Candace Sidner**, Principal Research Engineer, BAE Systems AIT, Burlington MA, candy.sidner@alumni.mit.edu
- **Jonathan Gratch**, Research Associate Professor, University of Southern California, gratch@ict.usc.edu
- **Matthew Turk**, Professor, University of California, Santa Barbara, mturk@cs.ucsb.edu
- **Anton Nijholt**, Full Professor of Computer Science, University of Twente, Netherland, anijholt@cs.utwente.nl
- **Michael Collins**, Assistant Professor, Massachusetts Institute of Technology, mcollins@csail.mit.edu